Trop J Obstet Gynaecol, 18 (2), October 2001.

A Review of Pregnancy Outcome in Women with Eclampsia at the University of Calabar Teaching Hospital, Calabar.

Itam H. Itam and John E. Ekabua.
Department of Obstetrics & Gynaecology, University of Calabar Teaching Hospital, Calabar.

Abstract

Context: *Eclampsia remains an important cause of maternal and perinatal morbidity and mortality throughout the world, particularly in developing countries. A constant review of treatment outcomes is therefore needed.*
Objective: *To document the relative risk of adverse pregnancy outcome in eclamptic women who delivered in our hospital (vaginal vs. abdominal) and to proffer measures for risk-reduction.*
Study Design, Setting and Subjects: *A comparative review of pregnancy outcome in women with eclampsia at the University of Calabar Teaching Hospital (UCTH), Calabar, over a 10-year period was conducted. Eighteen women who had abdominal delivery were compared with a control group of 11 who had vaginal delivery. Six women who had regional anaesthesia for abdominal delivery were compared with a control group of 12 cases that underwent general anaesthesia.*
Outcome Measures: *Adverse maternal outcome including maternal death; adverse fetal outcome.*
Results: *The relative risk (RR) of adverse fetal outcome with abdominal delivery was higher for parameters such as birth asphyxia (RR: 2.42), low birth weight (RR: 1.84) and neonatal death (RR: 1.22). The risk for adverse maternal outcome with abdominal delivery was also higher: hemiplegia (RR: 1.22), oliguria (RR: 1.84) and maternal death (RR: 1.22). The use of regional anaesthesia for abdominal delivery was associated with a risk of failed anaesthetic technique (RR: 2.00) and aspiration of gastric contents (RR: 1.20).*
Conclusion: *Eclampsia is a serious but preventable obstetric complication associated with poor pregnancy outcome. Current treatment protocol in our hospital has not resulted in improved outcome, especially in eclamptics delivered by caesarean section.*
Key Words: Pregnancy, Eclampsia, Anaesthesia, Outcome. [Trop J Obstet Gynaecol, 2001, 18: 66-68]

Introduction

Eclampsia is defined as the occurrence of generalized tonic-clonic convulsions in a pregnant woman with pre-eclampsia after the 20th week of gestation and within 7 days of delivery[1]. It remains an important cause of maternal and perinatal morbidity and mortality throughout the world, particularly in developing countries [2,3,4]. The higher rate of morbidity in developing countries has been attributed to lack of antenatal care, poor transport facilities, delay in effecting treatment and administrative problems [5, 6, 7]. In a related study we have shown that eclampsia is predominantly a disease of the young, nulliparous, unbooked, neglected and poor illiterate [8]. The aim of this study is to document the relative risk of adverse pregnancy outcome in eclamptic women who delivered (vaginal vs. abdominal) in our hospital and to proffer measures for risk reduction.

Materials and Methods

There were 12, 749 deliveries during the study period (1988 – 1997). Data from the case notes retrieved from the Records Department were analysed for gestational age, route of delivery, type of anaesthesia used for caesarean section and associated complications. Exclusion criteria used in this study included cases of Home delivery (9 patients) and other causes of generalised convulsions. The study sample of 29 patients was compared for pregnancy outcome according to the route of delivery and type of anaesthesia used for caesarean section. Women who delivered vaginally were compared with caesarean section patients while women who had general anaesthesia for abdominal delivery were compared to those who had regional anaesthesia. Measure of treatment effect used in this review was relative risk (RR) assessment. Relative risk is the probability of outcome in the observed or intervention group divided by probability of outcome in the control group.

Results

Thirty-eight cases of eclampsia were recorded during the study period (1988-1997) at UCTH Calabar, giving an frequency of 3.0 per 1000 births. Nine cases of post-partum eclampsia were excluded from the review. Twenty-one had antepartum eclampsia at a mean gestational age of 35 ± 3.2 weeks, while 8 women had intrapartum fits at a mean gestational age of 38 ± 1.7 weeks. Only 5 (17.2%) patients received antenatal care.

Correspondence: *Dr. I.H. Itam, Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital, Calabar, Cross River State, Nigeria*

Table 1

Fetal Outcome and Route of Delivery

Fetal Complications	Vaginal Delivery n (ROC) *[N = 11]*	Abdominal Delivery n (ROC) *[N = 18]*	Relative Risk
Birth Asphyxia	1 (0.091)	4 (0.222)	2.42
Low Birth Weight	1 (0.091)	3 (0.167)	1.84
Neonatal Sepsis	1 (0.091)	2 (0.111)	1.22
Intrauterine Death	3 (0.273)	2 (0.111)	0.41
Neonatal Death	2 (0.182)	4 (0.222)	1.22

Control Group: *Vaginal Delivery;* ROC: *Risk of Outcome.*

Table 1 shows a higher relative risk for birth asphyxia (2.42), low birth weight (1.84), neonatal sepsis (1.22) and neonatal death (1.22) among eclamptics who had abdominal delivery than among those who delivered vaginally. The relative risk for intrauterine death/stillbirth (0.41) was lower in the abdominal delivery group.

In Table 2, the relative risk for adverse maternal outcome is demonstrated. Women who had abdominal delivery had a higher risk for hemiplegia, oliguria, and maternal death but lower for aspiration pneumonia, autism, coagulopathy and abruptio placenta. Table 3 shows that the relative risk for failed anaesthetic technique and aspiration of gastric content was higher in women who had regional anaesthesia for caesarean section.

Table 2

Maternal Outcome and Route of Delivery

Fetal Complications	Vaginal Delivery n (ROC) *[N = 11]*	Abdominal Delivery n (ROC) *[N = 18]*	Relative Risk
Aspiration Pneumonia	2 (0.182)	3 (0.167)	0.92
Hemiplegia	1 (0.091)	2 (0.111)	1.22
Autism	1 (0.091)	1 (0.056)	0.62
Coagulopathy	1 (0.091)	1 (0.056)	0.62
Abruptio Placentae	2 (0.182)	1 (0.056)	0.31
Oliguria	1 (0.091)	3 (0.167)	1.84
Maternal death	2 (0.182)	4 (0.222)	1.22

Control Group: *Vaginal Delivery;* ROC: *Risk of Outcome.*

Discussion

The definitive treatment for eclampsia is delivery [9]. Once the maternal condition has been stabilised by appropriate treatment, delivery should be expedited. One major factor that determines the route of delivery is fetal condition. Poor fetal outcome has been reported from various centres in the country [2, 5, 10]. This is attributable to impairment of placental perfusion, placental abruption, and a shift of the oxygen dissociation curve to the left, resulting in decreased availability of oxygen to the fetus[11]. These factors explain the increased tendency to deliver women with eclampsia by caesarean section especially when the cervix is unfavourable.

Table 3

Type of Anaesthesia and Outcome

Fetal Complications	Regional Anaesthesia n (ROC) *[N = 6]*	General Anaesthesia n (ROC) *[N = 12]*	Relative Risk
Failed Technique	2 (0.333)	2 (0.167)	2.00
Aspiration of Gastric Contents	1 (0.202)	2 (0.167)	1.20
Fetal Depression	2 (0.333)	4 (0.333)	1.00
Maternal death	1 (0.202)	3 (0.250)	0.80

Control Group: *General Anaesthesia.*

Analyses of fetal outcome (shows increased relative risks in eclamptics delivered abdominally for birth asphyxia, low birth weight, neonatal sepsis and neonatal death. The increased risk of birth asphyxia is probably attributable to fetal distress following repeated fits before presentation and heavy maternal sedation with diazepam and/or lytic cocktail upon arrival in hospital. Magnesium sulphate, which has been shown to produce better fetal outcome [9], is not used in our hospital. Preterm delivery resulted in an increased risk of low birth weight. Vigorous resuscitation and invasive procedures such as nasopharyngeal suction and endotracheal intubation, which were performed on babies delivered abdominally, may account for the increased risk of neonatal sepsis in that group. The risk for intrauterine death was high with vaginal delivery. This was related to late presentation after repeated fits at home, with resultant fetal death in-utero. The poor perinatal outcome in this study, even in eclamptics delivered by caesarean section, is similar to an earlier report from Lagos [5].

Eclampsia is usually part of a multisystem disorder. Reported complications include abruptio placentae, disseminated intravascular coagulopathy (DIC), renal failure, neurological deficits and adult respiratory distress syndrom.[2, 5, 12]. The risk of developing hemiplegia, oliguria and maternal death was higher in eclamptics delivered abdominally. This may be related to the more severe disease process in eclamptics delivered by caesarean section.

The cause of maternal death could not be ascertained, as relatives of the deceased did not consent to post-mortem examination. The high risk of autism in women delivered vaginally may be related to prolonged maternal sedation with diazepam and pethidine. Abdominal delivery of eclamptics with abruptio placentae and established coagulopathy is hazardous and should be avoided except where the fetus is alive. The relatively low risk for aspiration pneumonia in eclamptics delivered abdominally is probably due to the airway being secured with cuffed endotracheal tubes during general anaesthesia. Also heavy maternal sedation with depression of the cough reflex increased the risk of aspiration pneumonia in eclamptics delivered vaginally. A change in the treatment protocol of eclampsia, in view of recent advances [13, 14] made in the discipline may result in an improvement in the poor maternal outcome observed in this study.

When considering abdominal delivery in eclamptics, the interest of both mother and fetus, as well as the technical ability of the anaesthetist are crucial. General anaesthesia is recommended in complicated eclampsia with prolonged coma, coagulopathy, anatomical defects and sepsis of the lumbar region [13]. However, general anaesthesia is associated with exaggerated pressor response to intubation, increased risk of failed intubation, and potential aspiration of gastric content and fetal depression. In this study the relative risk of failed anaesthetic technique with regional anaesthetic is twice that with general anaesthesia. This is probably due to gross lumbosacral oedema and difficulty in accurately positioning of patients for spinal or epidural anaesthesia under heavy sedation. However, the direct contribution of the type of anaesthesia to maternal death could not be ascertained as maternal condition was already compromised prior to surgery in most cases and post-mortem examination was not performed.

Conclusion

Eclampsia is a deadly but preventable obstetric complication associated with poor pregnancy outcome. Current treatment protocol in our hospital has not resulted in improved outcome especially in eclamptics delivered by caesarean section. Measures directed at prevention and improvement of outcome in eclampsia would include:

- improved utilization of antenatal care services.
- accessible and affordable functional emergency obstetric care.
- early referral of patients to hospital and prompt treatment.
- avoidance of multiple doses of anticonvulsants and sedatives.
- the use of magnesium sulphate for control of fits[9].
- establishment of a functional intensive care unit with facilities for adequate haemodynamic monitoring of eclamptics manned by experienced anaesthetists [11, 13].
- audit of all treated cases of eclampsia and postmortem examination of all fatalities.

References

1. Davies NJ. Hypertensive disorders of pregnancy for the trainee. *Br J Hosp Med,* 1992; 47: 613–618.

2. Dare FO, Eniola OA, Bariweni AC. Eclampsia revisited. *Nig J Med.* 1998; 7: 168–171.

3. Adewunmi OA. Maternal mortality in Ibadan City – 1982. *West Afr J Med,* 1986; 5: 121–127.

4. Adetoro OO. The pattern of eclampsia at the University of Ilorin Teaching Hospital (UITH) Ilorin, Nigeria. Int J Gynecol Obstet. 1990; 31: 221–226.

5. Odum CU, Ijeoma IA. A critical evaluation of the influence of caesarean delivery on the final outcome in eclampsia in Lagos University Teaching Hospital (LUTH). *Nig J Med.* 1993; 3: 196–202.

6. Diejomaoh FME, Omene JA, Omu AE. Preeclampsia and eclampsia at the University of Benin Teaching Hospital; a review of 226 cases. *Trop J Obstet Gynaecol,* 1980; 1: 91–96.

7. Ogunbode O. Clinical aspects of eclampsia at Ibadan, Nigeria. *Nig Med J.* 1977; 7: 162-165.

8. Itam IH, Ekabua JE. Sociodemographic determinants of eclampsia in Calabar. A ten year review. *In press.*

9. RCOG guideline. Management of Eclampsia. RCOG, 1996 (10); 1-4.

10. Onah HE, Okoro JM, Megafu V, Iloabachie GC. Eclampsia at Enugu, Nigeria: a five year review. *Trop J Med Res,* 1998; 2: 28-31.

11. Mushambi MC, Halligan AW, Williamson K. Recent developments in the pathophysiology and management of pre-eclampsia. *Br J Anaesth,* 1996; 76: 133–148.

12. Douglas KA, Redman CWG. Eclampsia in the United Kingdom. *BMJ,* 1994; 309: 1395–1400.

13. James MFM. The role of the anaesthetist in the management of pre-eclampsia. *Update Anaesth,* 1998; 9:17–22.

14. Baskett TF, Sternadel J. Maternal intensive care and near–miss mortality in obstetrics *Br J Obstet Gynaecol,* 1998; 105: 981-984.